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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,708	12/21/2005	Winfried Johannes Spickemann	0934-0009	8176
26568 7590 09/12/2011				
COOK ALEX LTD				
SUITE 2850				
200 WEST ADAMS STREET				
CHICAGO, IL 60606				
EXAMINER				
KHARE, ATUL P				
ART UNIT		PAPER NUMBER		
1742				
MAIL DATE		DELIVERY MODE		
09/12/2011		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/561,708

**Applicant(s)**

SPICKEMANN ET AL.

**Examiner**

ATUL P. KHARE

**Art Unit**

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 August 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 5) ☒ Claim(s) 1-5, 7, 9, 12, 13, 16-19 and 21-23 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-5, 7, 9, 12, 13, 16-19 and 21-23 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 8/19/11, 8/19/11, 8/19/11
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed 19 August 2011 has been entered and fully considered.
2. Claims 1-5, 7, 9, 12, 13, 16-19, and 21-23 are currently pending. Claims 6, 8, 10, 11, 14, 15, and 20 have been canceled.
3. No new matter has been found.

### ***Response to Arguments***

4. Applicant's arguments, see Remarks pp. 10-11, filed 19 August 2011, with respect to the rejection(s) of claim(s) 1 and 13 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Specifically, the arguments outline how although calcium sulfate dihydrate and calcium sulfate hemihydrate are similar in composition, their relative particle size distribution and surface area are not comparable due to their divergent physical properties. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Andersen et al. (US 5,683,772).
5. Additional arguments appear to be on the grounds that the dihydrate particles of Rennen do not function as an inert filler because they act as an accelerator (Remarks p. 12). This argument is not found persuasive because although Rennen teaches that a portion of dihydrate can be used as a setting accelerator (p. 12 second paragraph),

Rennen also teaches that up to 20% of the dihydrate, together with other inert fillers, can be used without changing the setting properties of the mixed gypsum. The second full paragraph of p. 13, which states "the binder fraction can contain additionally up to 20% natural gypsum (dihydrate)..." further demonstrates that this dihydrate is different from the dihydrate accelerator listed in the table at p. 13.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-5, 7, 9, 12, 13, 16-19, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rennen et al. (EP 0344430, already of record) in view of Andersen et al. (US 5,683,772). A translation of EP 0344430 will be used for examination.

10. As to claims 1-3, 7, 9, 21, and 23, Rennen teaches a method of preparing gypsum wallboard comprising: combining calcium sulfate hemihydrate (calcined FGD gypsum) with water to form an aqueous slurry (Table, p. 13); adding uncalcined synthetic gypsum particles that are calcium sulfate dihydrate particles of desulfurization gypsum (p. 6 first and second full paragraphs) to said slurry (p. 12 first full paragraph, p. 14 claim 5), wherein the dihydrate particles are present at up to 20 weight percent (p. 12 first full paragraph, p. 14 claim 5); and discharging the slurry onto a support to form a sheet of gypsum wallboard by setting the slurry (p. 9 second full paragraph, pp. 1-2 continuous manufacturing method), wherein the calcium sulfate dihydrate DSG particles comprise an inert particulate filler which implicitly improves acoustic properties of the wallboard (p. 12 second paragraph). The amount of dihydrate taught by Rennen is believed to meet the claimed ranges (MPEP 2144.05(I)).

Rennen does not appear to explicitly disclose the specific surface area or particle size distribution of the dihydrate DSG particles. However, Andersen teaches a method

for making a wallboard in which an inert inorganic aggregate (such as dihydrate gypsum) is also incorporated as a filler (4:55, 50:63-51:8, 51:24-26), wherein the surface area is from about 0.1-400 m<sup>2</sup>/g and preferably from 0.2-2 m<sup>2</sup>/g (50:41-46, MPEP 2144.05(I)), and wherein the particle size is preferably from 0.05-2000 microns (49:54-56, MPEP 2144.05(I)). The proportion of aggregate is preferably from 0-80% and is a result-effective variable that a person having ordinary skill in the art would have readily optimized as a matter of routine experimentation (52:61-53:12, MPEP 2144.05(II)). It would have been obvious to incorporate the Andersen teachings into Rennen in order to optimize the packing density, minimize the amount of required binder and solvent, and reduce overall material costs and production time (Andersen 14:38-43, 49:54, 50:38-41).

11. As to claim 4, Rennen implicitly teaches the use of a dry dihydrate substance which is combined with calcined gypsum and water to form a slurry (p. 12 first full paragraph, p. 14 claim 5). Alternatively, the desulfurization process implicitly dries the product (p. 6 second full paragraph). Alternatively, Andersen teaches providing dry aggregate (69:51). It would further have been obvious to incorporate a step of drying the dihydrate in order to purify the gypsum and control the water content of the resulting slurry.

12. As to claim 5, Rennen does not appear to explicitly disclose mixing water with the dihydrate DSG prior to mixing with the calcined gypsum, but a person having ordinary skill would have found it obvious to rearrange the process steps already disclosed by modified Rennen in order to accomplish this (MPEP 2144.04(IV)(C)).

13. As to claim 12, Rennen teaches that existing gypsum wallboard is crushed to a suitable size and added to the slurry (p. 13 first full paragraph), which implicitly provides additional bulk to improve the acoustic properties of the wallboard.

14. As to claims 13, 16-18, and 22, Rennen teaches forming a gypsum wallboard comprising a cementitious composition, the composition comprising a mixture of calcium sulfate hemihydrate (calcined FGD gypsum), water (Table, p. 13), and uncalcined synthetic gypsum particles that are calcium sulfate dihydrate particles of desulfurization gypsum (p. 6 first and second full paragraphs, p. 12 first full paragraph, p. 14 claim 5), said mixture having been set into gypsum wallboard (pp. 1-2 continuous manufacturing method), the dihydrate particles being present at 20 weight percent (p. 12 first full paragraph, p. 14 claim 5), wherein the calcium sulfate dihydrate DSG particles comprise an inert particulate filler which implicitly improves acoustic properties of the wallboard (p. 12 first and second paragraphs). The amount of dihydrate taught by Rennen is believed to meet the claimed ranges (MPEP 2144.05(I)).

Rennen does not appear to explicitly disclose the specific surface area or particle size distribution of the dihydrate DSG particles. However, Andersen teaches a method for making a wallboard in which an inert inorganic aggregate (such as dihydrate gypsum) is also incorporated as a filler (4:55, 50:63-51:8, 51:24-26), wherein the surface area is from about 0.1-400 m<sup>2</sup>/g and preferably from 0.2-2 m<sup>2</sup>/g (50:41-46, MPEP 2144.05(I)), and wherein the particle size is preferably from 0.05-2000 microns (49:54-56, MPEP 2144.05(I)). The proportion of aggregate is preferably from 0-80% and is a result-effective variable that a person having ordinary skill in the art would have

readily optimized as a matter of routine experimentation (52:61-53:12, MPEP 2144.05(II)). It would have been obvious to incorporate the Andersen teachings into Rennen in order to optimize the packing density, minimize the amount of required binder and solvent, and reduce overall material costs and production time (Andersen 14:38-43, 49:54, 50:38-41).

15. As to claim 19, Rennen teaches that existing gypsum wallboard is crushed to a suitable size and added to the slurry (p. 13 first full paragraph), which implicitly provides additional bulk to improve the acoustic properties of the wallboard.

16. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rennen et al. (EP 0344430) in view of Andersen et al. (US 5,683,772) as applied to claims 1-5, 7, 9, 12, 13, 16-19, and 21-23 above, and further in view of Deleuil (US 4,221,599, already of record).

17. As to claim 4, in the alternative that it is ultimately determined that the claimed features are not met as outlined above, Deleuil teaches drying a similar gypsum material prior to making a slurry in order to purify the product (3:56-4:2), and it would have been obvious to incorporate this drying operation into the modified Rennen method in order to accomplish the same.

18. As to claim 5, in the alternative that it is ultimately determined that the claimed features are not met as outlined above, Deleuil teaches wetting a similar gypsum material prior to admixing with other components in the case where the gypsum is insufficiently moist, and it would have been obvious to mix water with modified Rennen's



dihydrate material prior to mixing with calcined gypsum according to this teaching in order to accomplish the same.

### ***Conclusion***

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATUL P. KHARE whose telephone number is (571)270-7608. The examiner can normally be reached on Monday-Thursday 7:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571)272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ATUL P. KHARE/

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Examiner, Art Unit 1742

/Christina Johnson/  
Supervisory Patent Examiner, Art Unit 1742